

OKC 1532

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April 3, 1961  
JF-M-230

Wendell:

Subject: Contract FR-8200

In accordance with Clause 3 of the General Provisions we wish to inform you that present estimates indicate that an additional \$1,916,491 will be required to complete the contract. This amount includes \$84,912 for items we consider beyond the scope of the contract, leaving an overrun of \$1,831,579. In connection with the estimate to complete which generated these figures, we have also reviewed our anticipated expenditure rate. This indicates that no additional funding will be required for the period ending 30 June 1961, \$2,571,572 will be required for the period ending 30 June 1962, and \$310,000 will be required for the period ending 30 June 1963.

Attachment "A" shows the costs through February 24, 1961, plus the estimate to complete and the items considered to be beyond the scope of the contract.

Attachment "B" compares the estimate made in Document No. 111 with the actual costs through February 24, plus the estimate to complete and shows the variance in the different categories of labor, material, and so forth.

Attachment "C" recapitulates the funding status and indicates the amounts required for the periods ending 30 June 1961, 30 June 1962, and 30 June 1963. Attachment "D" is a graphical presentation of this data which will be maintained up-to-date and furnished to you on a monthly basis.

A review of Attachment "B" indicates the major variances as follows:

Engineering Labor and Overhead	\$1,055,917
Optical Manufacturing	73,707
Mechanical Manufacturing	(50,121)
Quality Control	16,092
Purchases	611,942
Raw Glass	(127,786)
Travel	(30,000)
G & A	360,088
Fee	6,652
	<u>\$1,916,491</u>

I. The major contribution to the overexpenditure in engineering lies in the fact that considerably more time has been required to solve many of the technical

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problems than was originally anticipated. The delay in the assembly of the first unit is due almost entirely to this fact. The problems associated with material transport, vehicle attachment and caging, vehicle clearance envelope, weight and power requirements, stabilization, and system integration each have been exceedingly difficult to solve. The window problem is still not definitely solved, and although we are optimistic, this problem may require effort beyond that currently envisioned.

Because of the above affects it is estimated that the total program will extend through September of 1962. This effectively adds three months of engineering labor to that originally anticipated.

As compared to our original estimate in Document 111, a much greater amount of the fabrication work is being done in our engineering model shop, thus increasing the engineering estimate.

The changes in vehicle motions about our package after November 1960 caused some redesign and mock-up rework. These changes, plus the inclusion of means to anticipate the later addition of a computer for non-straight flight (see Document 266) are considered to be changes in scope and have added \$57,290 to the engineering cost of the contract.

II. Optical Manufacturing has increased above the original estimate for the following reasons:

1. Additional research during fabrication, especially in the field of light weight optical materials and their finishing.

2. Manufacturing for engineering test purposes in excess of the original estimate.

3. The original estimate was provided prior to final design and release of parts to manufacturing; weight and space limitations caused tighter tolerances and more complex manufacturing processes than originally planned.

III. Mechanical Manufacturing is shown as a reduction, however this is due mainly to transfer of much of this activity to the engineering model shop and to outside vendors.

IV. Quality Control: The increase in this estimate is due to the increased number, complexity and precision of the parts over what was originally envisioned.

V. Purchases: Increases in purchases can be attributed to the following:

- A. Greater breadboarding activity than originally anticipated was required because of the difficulties encountered in attaining the technical solutions enumerated above under "I".

- B. Certain items have proven more costly to purchase than originally anticipated, for instance: Sperry will expend \$74,000

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in excess of the amount originally anticipated for the purchase of gyros, and \$100,000 is required for the purchase of platforms as against our original estimate of \$35,000.

C. A considerably greater number of total and precision parts are required, thus increasing weight to the point where extremely expensive, light weight materials have become necessary.

D. Purchase of the items noted in Paragraphs 1 and 2 of our September 28, 1960 letter amounting to a total of \$20,050 which we consider to be beyond the scope of the contract as now written.

VI. Raw Glass: This item is shown as a \$127,786 decrease based on the present expectation that a window of one quartz glazing and two BK-7 glasings will suffice. If this expectation proves false, an additional \$100,000 to \$130,000 may be required.

VII. Travel: Experience to date plus anticipated travel expenditures indicate that this budget will be underexpended by \$25,000.

In summary, we presently estimate a requirement for \$1,916,491 beyond that presently committed (\$2,881,572 beyond that presently funded) to complete the work anticipated by this contract. Of this amount, we consider \$78,260 to be change in scope for which we request additional fee of \$6,652. The fiscal requirements for this funding are as follows:

<u>Period Ending</u>	<u>Amount</u>
30 June 1961	- 0 -
30 June 1962	\$2,571,572
30 June 1963	310,000
	<u>\$2,881,572</u>

If you require additional information or have any questions, please call me.

Charlie

CGH:jaf  
Attachments